

Magnet Inventory

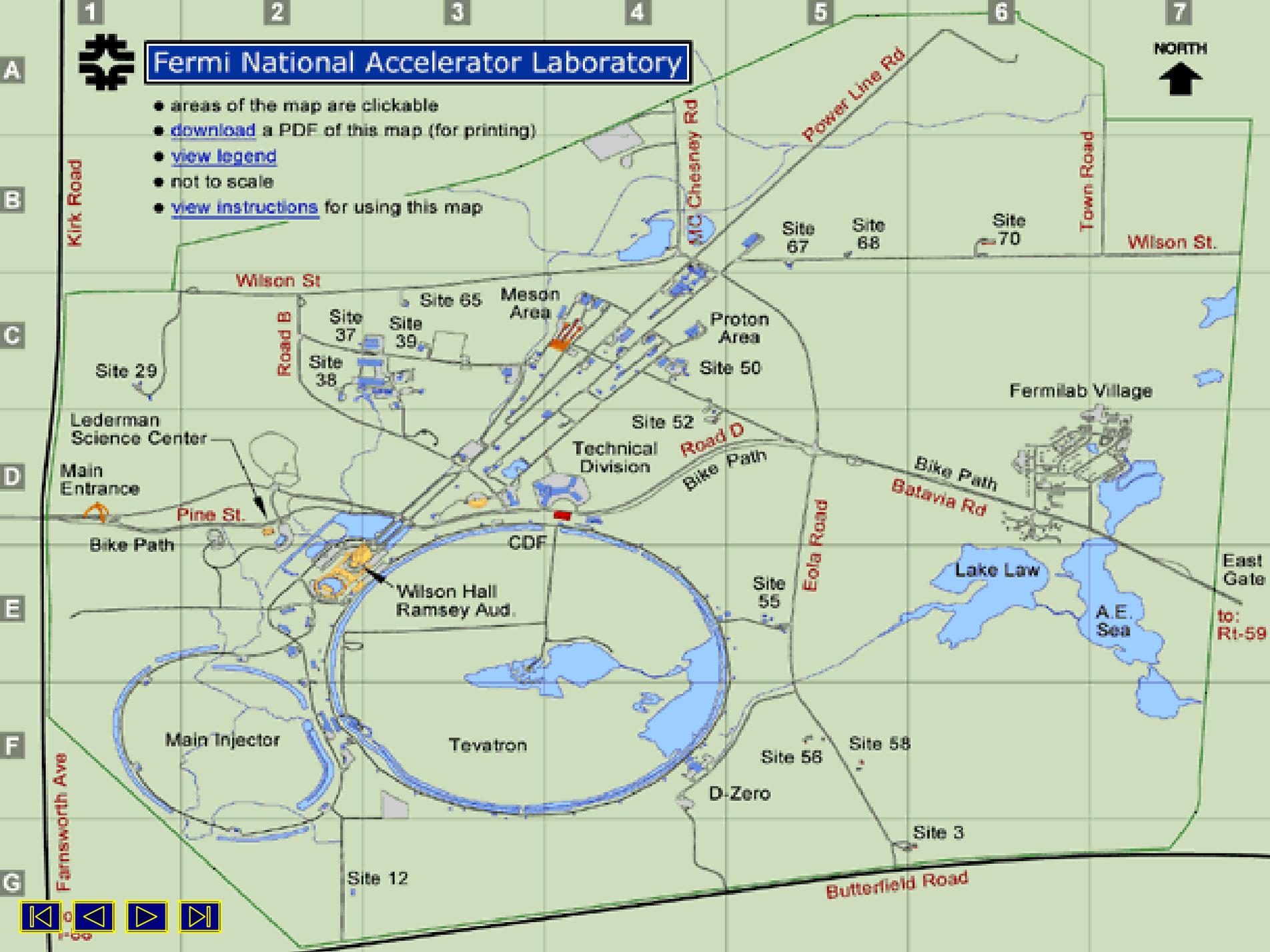
Charlie N. Igwekala
Electrical Engineering Major
Chicago State University



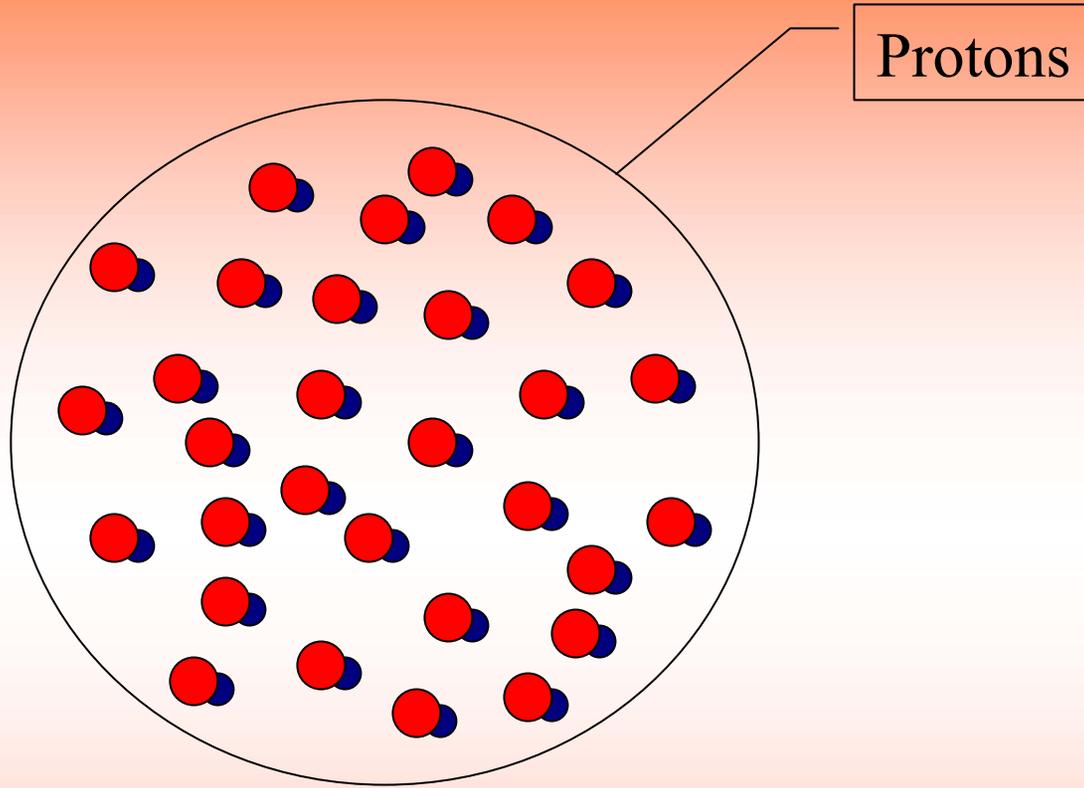


Fermi National Accelerator Laboratory

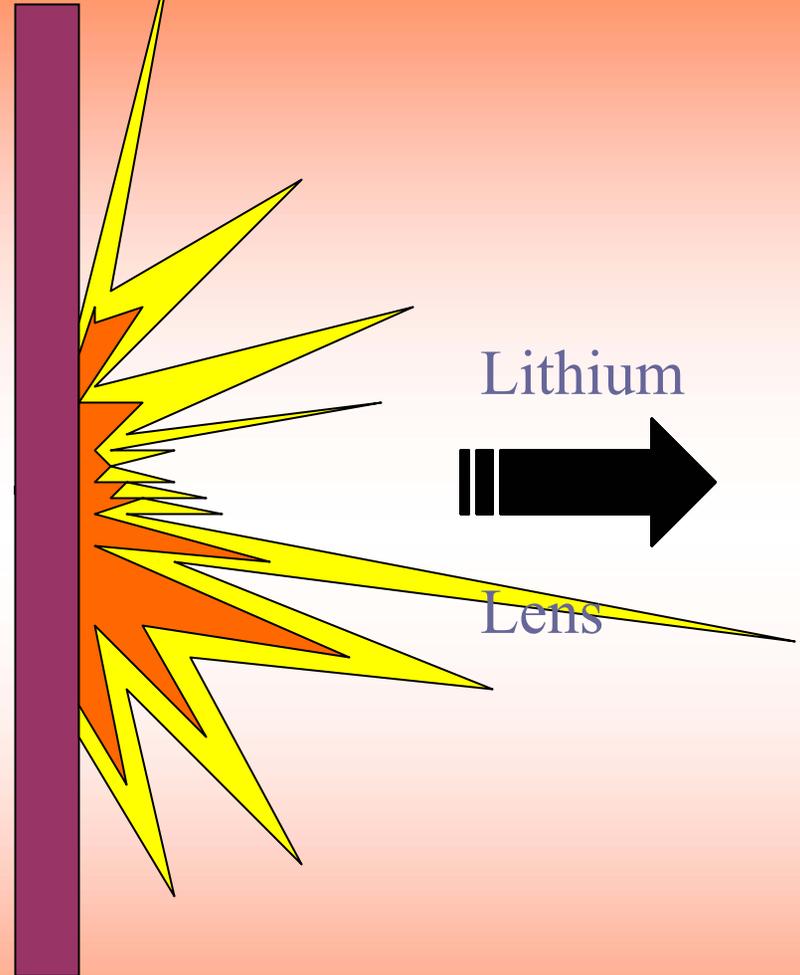
- areas of the map are clickable
- [download](#) a PDF of this map (for printing)
- [view legend](#)
- not to scale
- [view instructions](#) for using this map



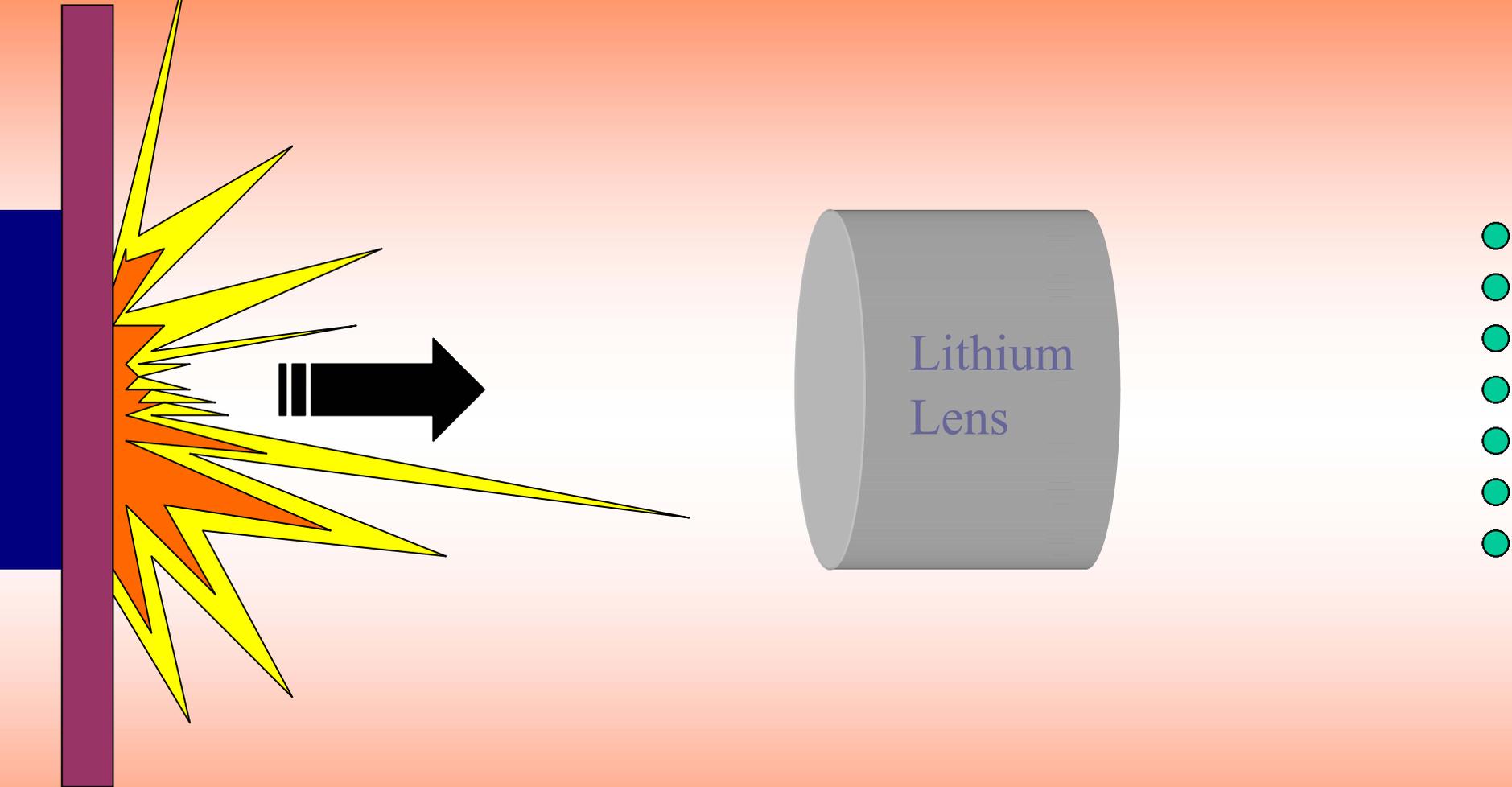
Dramatization of Antiproton Production



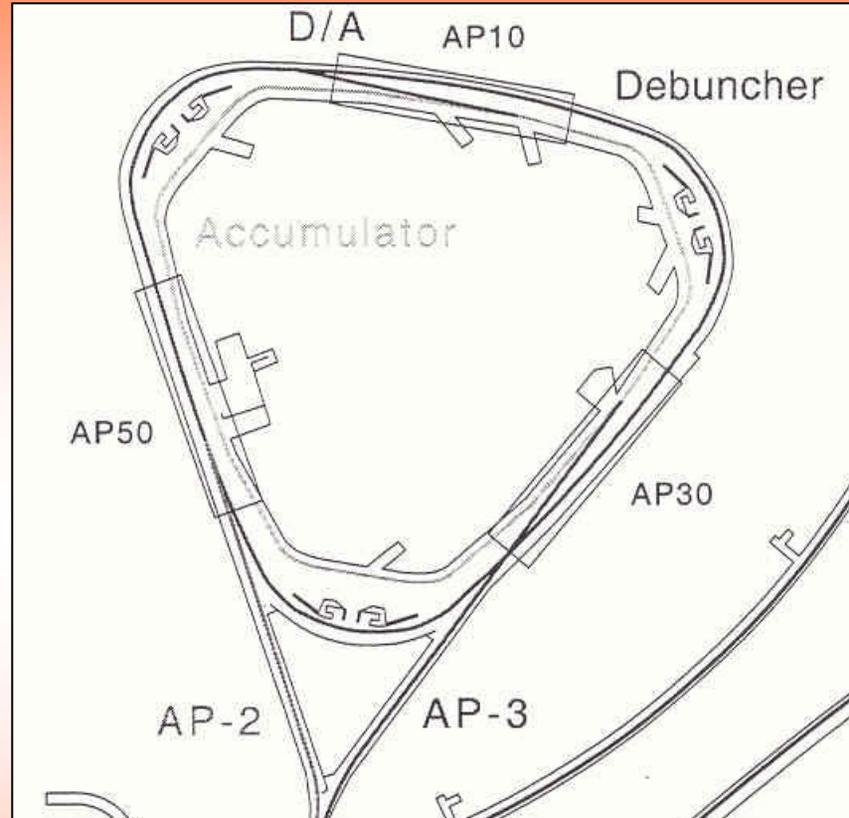
Dramatization of Antiproton Production



Dramatization of Antiproton Production

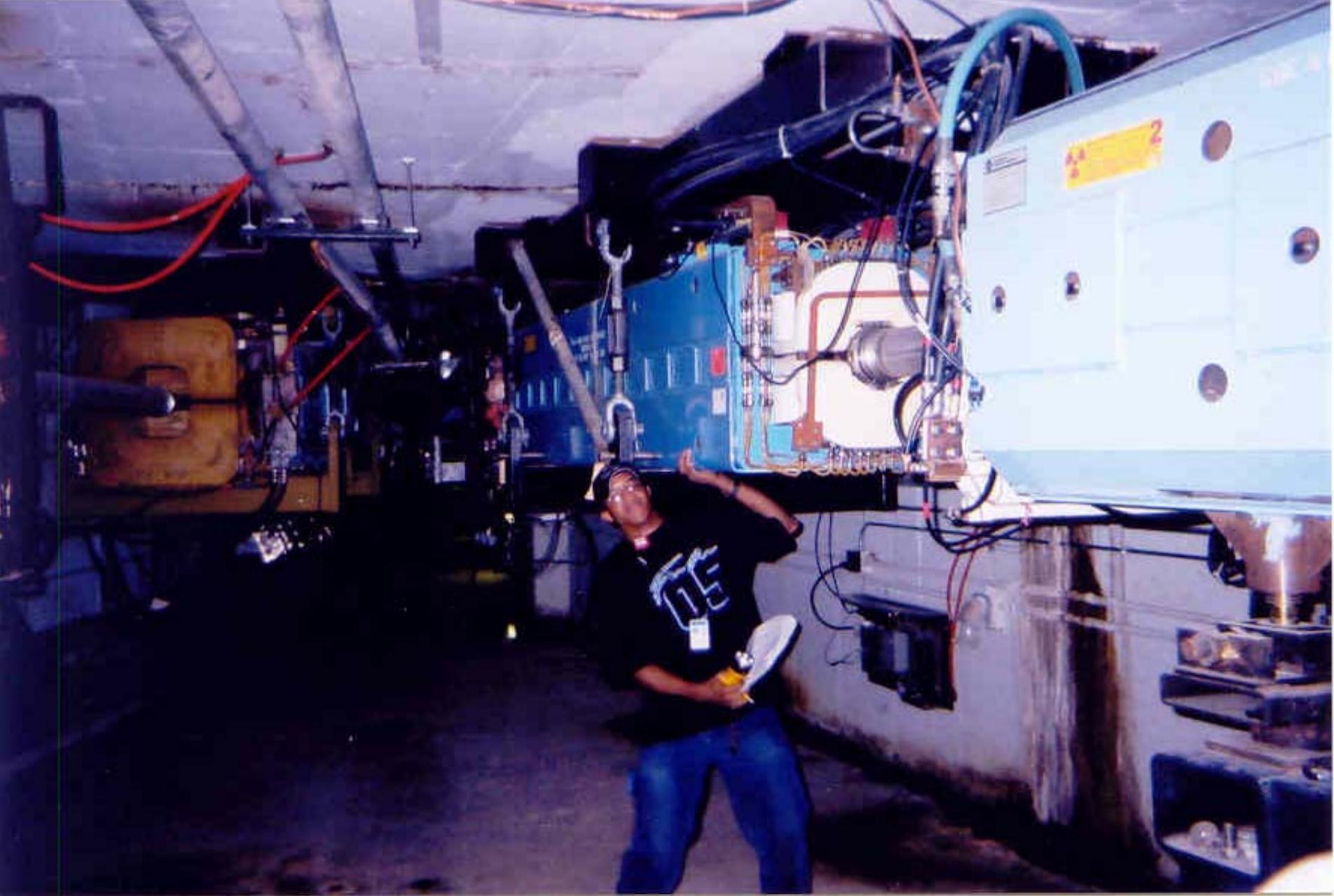


Dramatization of Antiproton Production



WARNING: Protons and antiprotons are not actual size

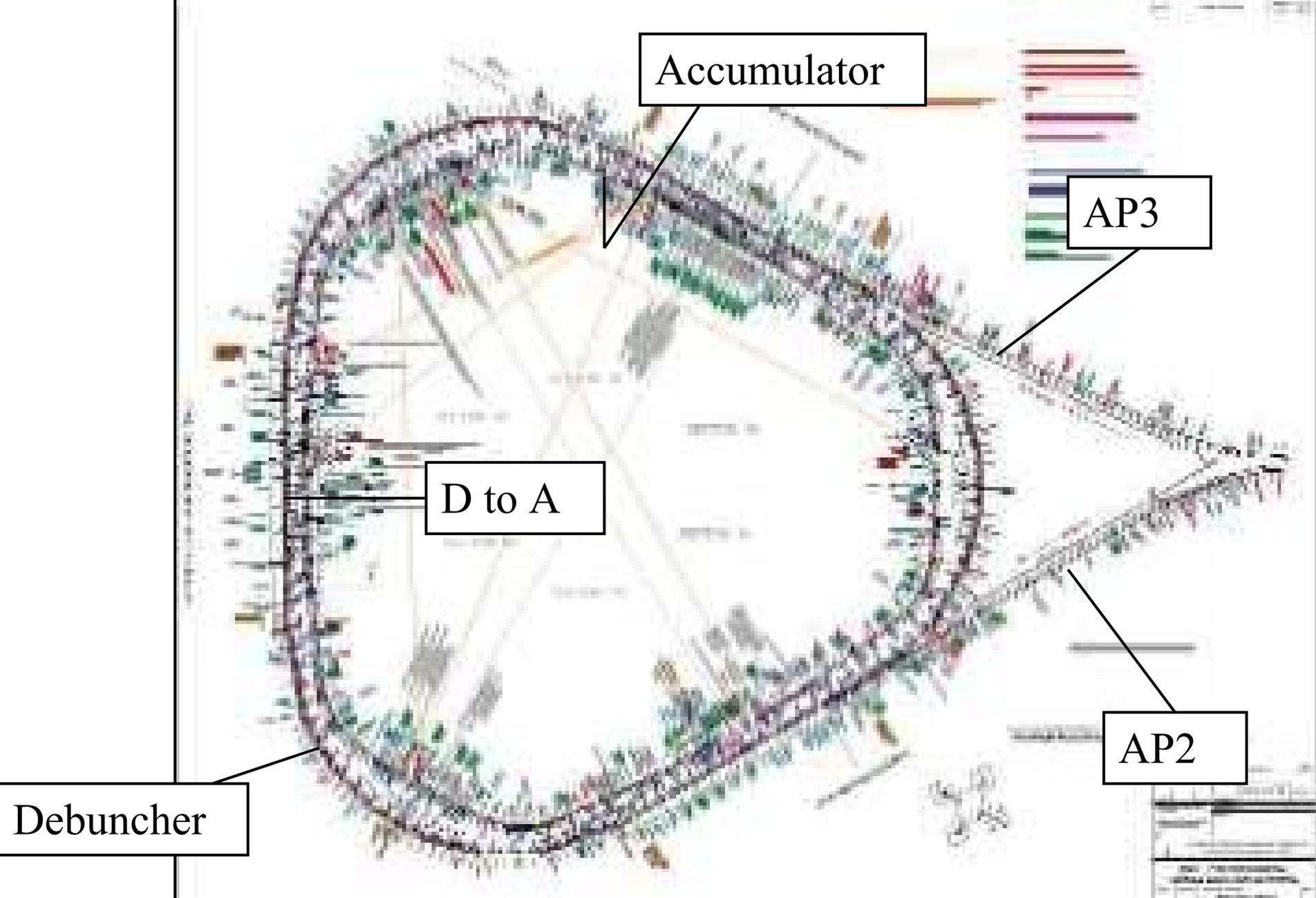




Weight of the Task



Getting Acquainted with Magnets



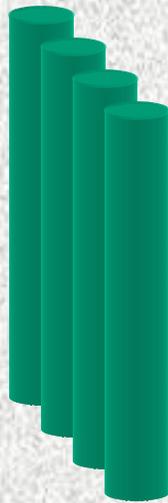
Compass Nightmare

Dipoles



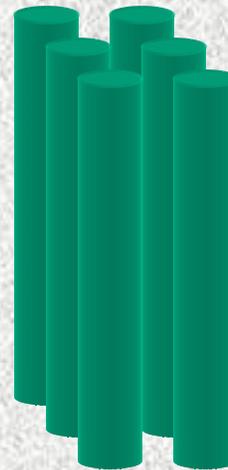
Used to alter
antiproton path

Quadrupoles



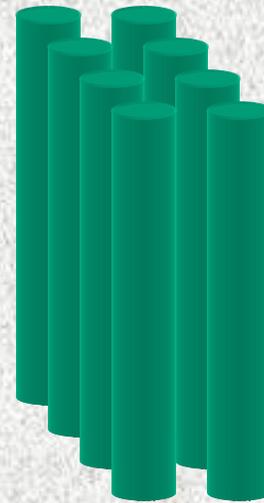
Reduces beam size,
horizontally and
vertically

Sextupoles



Other magnets... apologies...

Octupoles

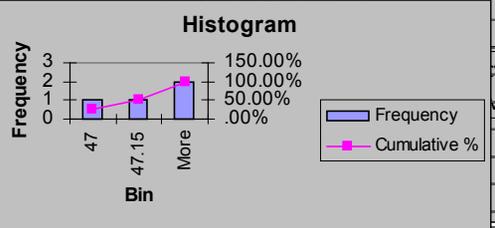




| Magnet Designation | Magnet Type | Serial # | L _s | Q | R | C _p | ID |
|--------------------|-------------|-----------------|----------------|--------|---------|----------------|----|
| A1B3 | SDA | SD0001 | 97.0 mH | 4.2435 | 0.01350 | | |
| A1B3 | SDA | SD0001 (rework) | 97.58 mH | 4.1343 | 0.01380 | | |
| A1B3 | SDA | SD0003 | 97.22 mH | 4.2443 | 0.01350 | | |
| E8620 pole | SDA | SD0007 (rework) | 67.07 mH | 4.3551 | 0.01326 | | |

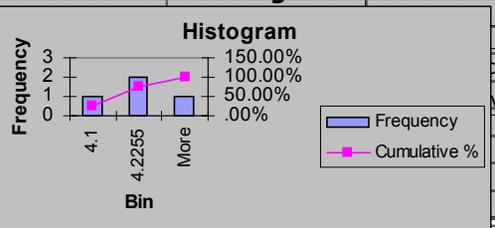
| Bin | Frequency | Cumulative % | Total |
|-----------|-----------|--------------|-------|
| Bin 91.53 | 1 | 100.00% | 6 |
| More | 59 | 100.00% | 65 |
| More | 49.55 | 50.00% | |
| More | 3 | 100.00% | |

Histogram



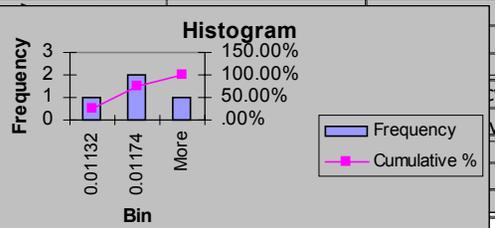
| Bin | Frequency | Cumulative % |
|---------|-----------|--------------|
| Bin 4.1 | 1 | 100.00% |
| More | 2 | 100.00% |
| More | 4.2255 | 50.00% |
| More | 2 | 100.00% |
| More | 1 | 100.00% |

Histogram



| Bin | Frequency | Cumulative % |
|-------------|-----------|--------------|
| Bin 0.01132 | 1 | 100.00% |
| More | 2 | 100.00% |
| More | 0.01174 | 100.00% |
| More | 1 | 100.00% |

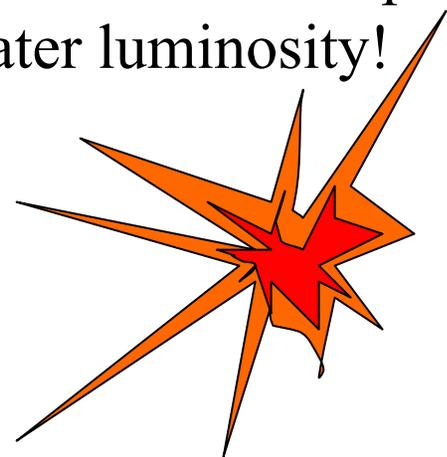
Histogram



Sooooooo Many Magnets!!!

With so many magnets, it is important to know where magnets are and what the magnetic characteristics are within the source.

All this plays an important role in the endless pursuit of greater luminosity!



B vs I

Let's Get Ready
To Rumble!!!

Conclusion

Finis

The End

Thank You